

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1, 2, 7-13, 16-22, 25-32 and 40-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA (Applicant's Admitted Prior Art, Specification, Pages 1-6) in view of Johnston (4,518,642), Fumiaki (JP 62-202699) and Hiroshima (6,059,926).

With respect to Claims 1, 2, 13, 22, 31, 40 and 43, AAPA teaches electronic equipment comprising a speaker (Specification, Page 4, Line 24 – Page 5, Line 4), wherein said speaker includes a diaphragm and a dust cap (Page 5, Lines 5-21), and each of said diaphragm and said dust cap is an injection-molded product made of a mixture containing a thermoplastic polypropylene resin material (Page 4, Lines 1-20), which is inherently a crystalline olefin resin (See U.S. Patent 6,596,783 for example which discusses at length that polypropylene is a thermoplastic crystalline resin, and further, it is well known that polypropylene is a type of olefin) and a fiber material (Page 5, Lines 18-25 – the Examiner considers a pulp (raw material of paper) to be a fiber material); wherein it is known to add a secondary granular thermoplastic resin to a primary thermoplastic resin (Specification, Page 4, Lines 1-20). AAPA fails to teach wherein the mixture is uniformly dispersed, said fiber material consists of one of

bamboo and bamboo leaf; wherein the granular thermoplastic resin is mixed with the primary composite of thermoplastic resin and fiber material, said primary composite material being formed of a dehydrated wet-mixture of fibrous thermoplastic resin and said fiber material. Johnston teaches wherein it is known to form a speaker diaphragm and dust cap when used in combination, of a mixture containing a thermoplastic crystalline olefin resin material (polypropylene) and a cellulose fiber material (Col. 2, Lines 4-10),; and when used in combination mixture being constituted by a secondary composite formed of a complex of a primary composite material with granular thermoplastic resin (of AAPA as indicated above), and wherein it is known to provide a primary composite material being formed of a dehydrated wet-mixture of fibrous thermoplastic resin and said fiber material (when combined with AAPA) (Col. 4, Lines 29-65). Because AAPA teaches that the speaker diaphragm and dust cap are formed from the same materials, the combination teaches that the Johnston material can be used to form both a speaker diaphragm and dust cap. Further, the Examiner considers it well known in the art that these two elements are formed from the same materials. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of AAPA, with the apparatus of Johnston to combine the advantageous frequency response and humidity insensitivity characteristics of thermoplastic diaphragms with the advantageous low mass, low cost and temperature characteristics of paper diaphragms. Further, regarding formation of materials (i.e. dehydrated wet mixture), the method of forming a device is not germane to the issue of patentability of the device itself. Therefore, this limitation has been given little

patentable weight. Fumiaki teaches wherein it is known to provide a mixture for injection molding a speaker diaphragm that is uniformly dispersed. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of AAPA as modified, with the apparatus of Fumiaki to allow for stable molding of the diaphragm to be attained. Hiroshima teaches a speaker diaphragm having a fiber material consisting of bamboo (Col.2, Lines 41-48; Col. 4, Lines29-39). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of AAPA as modified, with the apparatus of Hiroshima to provide simple substitution of one known cellulose fiber material for another provide the predictable result of the fibers functioning to provide a diaphragm and dust cap having good physical properties.

With respect to Claims 7, 16 and 25, AAPA teaches wherein it is known to provide a mixture including reinforcement (Page 1, Line 24 – Page 2, Line 3). Further, the fiber material taught by Johnston (Page 2, Lines 4-10) could be considered reinforcement.

With respect to Claims 8, 17 and 26 Johnston teaches said fiber material has a fiber length of 0.2 mm to 20 mm (Col. 3, Lines 48-57). Further, a change in size is generally recognized as being within the level of ordinary skill in the art. In re Rose, 105 USPQ 237 (CCPA 1955). Still further, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working range involves only routine skill in the art. In re Aller, 105 USPQ 233.

With respect to Claims 9, 18 and 27 Johnston teaches said mixture contains 5% to 70% by weight of said fiber material (Col. 3, Lines 60-68).

With respect to Claims 10-12, 19-21, 28-30, 41 and 42, AAPA, Johnston, Fumiaki and Hiroshima are relied upon for the reasons and disclosures set forth above. AAPA, Johnston, Fumiaki and Hiroshima fail to teach wherein said diaphragm and said dust cap is black or natural color; wherein in said diaphragm and said dust cap, said thermoplastic resin material and said fiber material are different in color from each other; and wherein in said diaphragm and said dust cap, said thermoplastic resin material is transparent or semi-transparent. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide wherein said diaphragm and said dust cap is black or natural color; wherein in said diaphragm and said dust cap, said thermoplastic resin material and said fiber material are different in color from each other; and wherein in said diaphragm and said dust cap, said thermoplastic resin material is transparent or semi-transparent, since the courts have stated that matters relating to ornamentation only which have no mechanical function cannot be relied upon to patentably distinguish the claimed invention from the prior art. *In re Seid*, 161 F.2d 229, 73 USPQ 431 (CCPA 1947).

With respect to Claim 32, it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. If the prior art structure is capable of performing the intended use, then it

meets the claim. Ex Parte Masham, 2 USPQ F.2d 1647 (1987). Further, the Examiner considers it well known to mount an electronic speaker device on or in a car.

Response to Arguments

2. Applicant's arguments with respect to claims 1, 2, 7-13, 16-22, 25-32 and 40-43 have been considered but are moot in view of the new ground(s) of rejection. The Examiner considers the obvious combination of AAPA, Johnston, Fumiaki and Hiroshima to teach all of the limitations as claimed by Applicant.
3. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Conclusion

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JEREMY LUKS whose telephone number is (571)272-2707. The examiner can normally be reached on Monday-Friday, 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Elvin Enad can be reached on (571) 272-1990. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Examiner, Art Unit 2832

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